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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/694,550
Filing Date: October 27, 2003
Appellant(s): COK, RONALD S.

Stephen Shaw
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed May 16, 2007 appealing from the Office action mailed October 19, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,967,437	SAMUEL ET AL.	11-2005
6,211,613	MAY	4-2001
6, 815,886	KAWASE	11-2004
5,855,994	BIEBUYCK ET AL.	1-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samuel et al. (US 6,967,437) in view of May (US 6,211,613).

Regarding claim 1, Samuel discloses in Figures 2 and 3, an organic Light emitting display, comprising: a substrate (silica substrate), a plurality of OLEDS (see Figure 3) formed on the substrate (1), the OLEDS emitting polarized light wherein the OLEDS comprise: a layer

(photoresist) defining a periodic grating structure (see column 9, lines 25-28), a first electrode layer (Au layer and PEDOT layer) conforming to the grating structure, an OLED material layer (MEH-PPV, wherein suitable small organic molecules can be used, see column 1, lines 60-63) formed over the first electrode layer (Au layer and PEDOT layer) and conforming to the grating structure, and a second electrode layer (calcium electrode and aluminum electrode) formed over the OLED material layer and conforming to the grating structure, wherein the first (Au layer and PEDOT layer) and/or second electrode (calcium electrode and aluminum electrode) are metallic layers, whereby the periodic grating structure induces surface plasmon cross coupling in the metallic electrode layer (see column 2, lines 55-62) to emit polarized light.

Samuel discloses the use of polarizer in Figure 7, however, is silent regarding the OLED further comprising a polarizer, wherein the polarizer is oriented such that the emitted polarized light passes through the polarizer without being substantially absorbed.

However, in the same field of endeavor, May discloses an EL device comprising a circular polarizer oriented such that the emitted polarized light passes through the polarizer without being substantially absorbed, and teaches the suitability of said polarizer for improving the contrast of the display, by absorbing light from the environment (see at least Col. 1, lines 55-58).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a polarizer of May for the organic light emitting diode of Samuel, in order to increase the contrast of the image.

Regarding claim 2, May teaches the polarizer being a circular polarizer (see column 1, lines 55-58), and the motivation to combine is the same as above.

Regarding claim 3, May teaches in Figures 1 and 2, the display being a top emitting display having an encapsulating cover, and the polarizer is affixed to the encapsulating cover, and the motivation to combine is the same as above.

Regarding claim 4, Samuel teaches in Figure 2, the display being a bottom emitter and the May reference the polarizer being affixed to the substrate, and the motivation to combine is the same as above.

Regarding claim 7, Samuel discloses the OLED wherein the metallic layers (calcium electrode and the aluminum electrode layers) are opaque.

Regarding claims 9 and 10, Samuel-May discloses the claimed invention except for the limitation of the display being an active matrix display, Samuel discloses a passive matrix display.

However, the Examiner notes that regardless of whether a passive matrix or an active matrix type is used, the EL device has a capacitor structure with an EL layer sandwiched by a cathode and an anode, and the EL display operates under the principle of causing the EL layer to luminance by the flow of electric current. Thus, it would have been obvious to one or ordinary skill in the art at the time the invention was made to use either a passive or active matrix display, since both method of driving the display operate under the same principles. Further, it is well known in the art that active matrix type provide a high-resolution display.

Regarding claim l 1, Samuel discloses in Figure 2, the first electrode layer is non-metallic (PEDOT layer) and further comprising a metallic layer formed on the first electrode layer (Au layer) and conforming to the grating structure.

Referring claim 12, Samuel discloses the first electrode layer (Au layer) being ITO (see column 9, lines 39-42).

Regarding claim 13, the claim is rejected over the reasons stated in the rejection of claim 1.

Claims 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable Samuel et al. (US 6,967,437) in view of May (US 6,211,613) in further view of Kawase (US 6,815,886).

Regarding claim 5, Samuel in view of May discloses an organic Light emitting display, comprising: a substrate (silica substrate), a plurality of OLEDS (see Figure 3) formed on the substrate (1), the OLEDS emitting polarized light wherein the OLEDS comprise: a layer (photoresist) defining a periodic grating structure (see column 9, lines 25-28), a first electrode layer (Au layer) conforming to the grating structure, an OLED material layer (MEH-PPV, wherein suitable small organic molecules can be used, see column 1, lines 60-63) formed over the first electrode layer (Au layer) and conforming to the grating structure, and a second electrode layer (calcium electrode and aluminum electrode) formed over the OLED material layer and conforming to the grating structure, wherein the first (Au layer) and/or second electrode (calcium electrode and aluminum electrode) are metallic layers, whereby the periodic grating structure induces surface plasmon cross coupling in the metallic electrode layer (see column 2, lines 55-62) to emit polarized light and the OLED further comprising a polarizer, wherein the polarizer is oriented such that the emitted polarized light passes through the polarizer without being substantially absorbed.

However, Samuel and May does not disclose the OLED material layer including portions for emitting different colors and the period of the grating structure being different for the different colors.

Kawase teaches in Figures 3 and 4, an organic light emitting diode display comprising: portions for emitting different colors and the period of the grating structure being different for the different colors (see Col. 10, lines 34-38) for the purpose of enhancing the respective color wavelength and providing multi-color outputs.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the polarizer of May and the multi-color output of Kawase for the organic light emitting diode display of Samuel in order to enhance the respective color wavelength and provide multi-color outputs.

Regarding claim 6, Kawase teaches the OLD wherein the layer defining a grating structure is a light absorbing layer (see column 8, lines 11-19), and the motivation to combine is the same as above.

Regarding claim 8, Kawase discloses the grating structure being a two- dimensional grating (see Col. 6, lines 56-57) and the motivation to combine is the same as above.

Claims 14-17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Samuel et al. (US 6,967,437) in view of May (US 6,211,613) in further in view of Biebuyck et al. (US 5,855,994).

Regarding claim 14, Samuel in view of May discloses the claimed invention except for the limitation of a diffuser to mitigate the effect of color aberrations. However, in the same field

of endeavor, Biebuyck discloses an EL device comprising a diffuser (see column 7, lines 18-35), in order to provide an organic light-emitting device having a light path for efficient emission.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a diffuser of Biebuyck and the polarizer of May for the display device of Samuel in order to provide an organic light-emitting device having a light path for efficient emission.

Regarding claim 15, Biebuyck teaches in Figure 1, the diffuser is applied to the exterior of the device and the motivation to combine is the same as in claim 14.

Regarding claim 16, Biebuyck teaches the diffuser is incorporated into the top encapsulate layer, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporate the diffuser into the substrate for a bottom emitting display in order to provide an organic light-emitting device having a light path for efficient emission.

Regarding claim 17, Biebuyck teaches in Figure 1, the display is a top emitting display having an encapsulating cover, and the diffuser is incorporated into the encapsulating cover.

(10) Response to Argument

Applicant's arguments beginning at page 9, in regards to the rejection of claims 1-17 have been considered, but are not persuasive. Applicant contends that the Samuel reference does not suggest that the periodic grating structures are configured to induce surface plasmon cross coupling in the metallic electrode layer to emit polarized light. The Examiner first points to column 2, lines 55-62, which disclose that LED structures emit energy in different modes (i.e.

radiative modes, trapped guide modes, and surface plasmon cross coupling associated with metal contacts). Samuel teaches that LED structures clearly emit in the surface plasmon cross coupling. Furthermore, as seen in figure 2, a periodic grating structure is present in the LED structure. Since the LED structure emits energy, it may emit in the surface cross coupling along, and other modes as well. The Samuel reference clearly contemplated that the LED is capable of emitting in several different modes. The Examiner now points to figure 7 of the Samuel reference, which teaches that the LED structure is capable of emitting polarized light. Even though the light may be generally unpolarized, Samuel shows that is may also be polarized (see FIG. 7).

The Examiner now points to the May reference, which discloses that a polarizer is used in conjuction with the LED structure in figure 1. May teaches that the polarizer is placed in front of a display and light passes through the polarized. The polarizer absorbs ambient light and emits polarized light (column 1, lines 59 thru column 2, line 4). Since the Samuel device emits polarized light, the May reference shows that the light emitted through the polarizer is further polarized.

Regarding the Kawase reference, the Examiner notes that the reference is not being used to show that induced surface plasmon cross coupling may occur. Instead, Kawase is used to show that the OLED material layer includes portions for emitting difference colors and period of the grating structure being different for the different colors.

Regarding the Biebuyck reference, since the combination of Samuel and May disclose the invention as discussed above, Biebuyck is used to show a diffuser can be used to mitigate the effect of color aberrations.

For the above stated reasons, it is considered that the Applicant has failed to provide evidence in the record to support his contention that the device as combined is patentably distinct from the device as covered by claims 1-17 of the instant application.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Natalie K. Walford 9/4/07

Patent Examiner

Sikha Roy 9/4/07
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